

1 **ABSTRACT OF THE DISCLOSURE**

2 A channel noise estimating method and apparatus applied to a multi-
3 carrier system are disclosed, where data symbols received by a receiving unit are
4 applied to reconstruct the original transmitted data symbols. The reconstructing
5 process is performed by either a soft decision or a hard decision technique to
6 simulate the original transmitted data symbols. These simulated transmitted data
7 symbols in company with the received data symbols are further applied to
8 calculate the channel noise based on an LMS algorithm.